

# Installing the Natural TSO Interface

The Natural TSO Interface (NATTSO) consists of a number of service routines interfacing with the OS/390 operating system. NATTSO is supplied as a source module and can be customized to meet your requirements (see also Step 3 of the NATTSO installation).

You have two options:

- assemble and link it to the Natural nucleus
- or run it separately, connecting with a shared nucleus.

NATTSO is fully reentrant and can run above the 16 MB line.

This document describes step by step how to install Natural in a TSO environment. It covers the following topics:

- Prerequisites
- Installation Tape for the Natural TSO Interface
- Installation Procedure for the Natural TSO Interface
- Installation Verification

For information on the following topics, refer to Natural under TSO (in the Natural TP Monitor Interfaces documentation):

- General Information about the Natural TSO Interface
- Natural TSO Datasets

**Notation *vrs* or *vr*:** If used in the following document, the notation *vrs* or *vr* stands for the relevant *version*, *release*, system maintenance level numbers.

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## Prerequisites

Base Natural must be installed under OS/390.

See Installing Natural under OS/390.

## Installation Tape for the Natural TSO Interface

The installation tape contains the dataset listed in the table below. The position of the dataset is shown in the **Report of Tape Creation** which accompanies the installation tape.

Dataset Name	Contents
NTInnn.SRCE	TSO-dependent source programs

The notation *nnn* in dataset names represents the version number of the product.

## Copying the Tape Contents to Disk

If you are using System Maintenance Aid (SMA), refer to the SMA documentation (included on the current edition of the Natural documentation CD).

If you are **not** using SMA, follow the instructions below.

This section explains how to:

- Copy data set COPY.JOB from tape to disk.
- Modify this data set to conform with your local naming conventions.

The JCL in this data set is then used to copy all data sets from tape to disk.

If the datasets for more than one product are delivered on the tape, the dataset COPY.JOB contains the JCL to unload the datasets for all delivered products from the tape to your disk.

After that, you will have to perform the individual install procedure for each component.

### Step 1 - Copy data set COPY.JOB from tape to disk

The data set COPY.JOB (label 2) contains the JCL to unload all other existing data sets from tape to disk. To unload COPY.JOB, use the following sample JCL:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//* -----
//COPY EXEC PGM=IEBGENER
//SYSUT1 DD DSN=COPY.JOB,
// DISP=(OLD,PASS),
// UNIT=(CASS,,DEFER),
// VOL=(,RETAIN,SER=<Tnnnnn>),
// LABEL=(2,SL)
//SYSUT2 DD DSN=<hilev>.COPY.JOB,
// DISP=(NEW,CATLG,DELETE),
// UNIT=3390,VOL=SER=<vvvvvv>,
// SPACE=(TRK,(1,1),RLSE),
// DCB=*.SYSUT1
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//
```

Where:

<hilev> is a valid high level qualifier

<Tnnnnn> is the tape number

<vvvvvv> is the desired volser

## Step 2 - Modify COPYTAPE.JOB

Modify the COPYTAPE.JOB to conform with your local naming conventions and set the disk space parameters before submitting this job:

- Set HILEV to a valid high level qualifier.
- Set LOCATION to a storage location.
- Set EXPDT to a valid expiration date.

## Step 3 - Submit COPY.JOB

Submit COPY.JOB to unload all other data sets from the tape to your disk.

# Installation Procedure for the Natural TSO Interface

## Step 1: Create CLIST

(Job I070, Step 2400)

Create a source Natural TSO CLIST.

This CLIST is used later to invoke Natural under TSO. Please note that this is only a basic example which you can adapt to your requirements and to your TSO environment.

## Step 2: Create ADARUN Cards

(Job I070, Step 2410)

Create source ADARUN cards.

This source member is required by the CLIST created in Step 1.

## Step 3: Assemble the Natural TSO Interface Module

(Job I070, Step 2415, Step 2420)

The source program NATTSO contains a call to the macro NTTSO which generates the Natural TSO interface.

- Job I070, Step 2415 does the IEBUPDTE.
- Job I070, Step 2420 assembles and links NATTSO.

Set the parameters in the source of the module NATTSO to fit your requirements.

For a description of the Natural TSO generation parameters contained in the macro NTTSO, refer to Natural TSO Interface Generation Parameters (in the Natural TP Monitors documentation).

Assemble and link the Natural TSO interface module NATTSO contained in the dataset NTInnn.SRCE.

## Step 4: Create and Assemble Parameter Module

(Job I080, Step 0010, Step 0015)

Create the Natural parameter module for TSO.

The following parameters in the parameter module must be modified for the installation:

```
FNAT=(dbid,fnat)  
FUSER=(dbid,fuser)
```

For *dbid*, *fnat* and *fuser* use the values you specified when loading the system files; see Installation Procedure for Natural under OS/390

**Global Buffer Pool:** If you wish to use a Natural *global* buffer pool under TSO, specify macro NTBPI as in Step 7 of the Natural installation procedure under OS/390.

**For all other parameters:** You can generally use the default values.

Modify only the values of those parameters whose default values do not suit your requirements.

For a description of the individual parameters contained in the parameter module, refer to the Natural Parameter Reference documentation.

For dynamic assignment of profile parameters, see also the CMPRMIN dataset described in the section Natural in Batch Mode (in the Natural Operations for Mainframes documentation).

Assemble and link the parameter module.

## Step 5: Link Natural TSO Nucleus

(Job I080, Step 0020)

With the INCLUDE instruction for the parameter module, specify the name of the Natural TSO parameter module created in Step 4.

### Non-Shared Nucleus:

If you do not wish to use a shared Natural nucleus under TSO:  
merge all INCLUDE statements and corresponding DD cards from Job I060, Step 0105 (shared nucleus) into Job I080, Step 0020 (front-end).

Link the executable Natural TSO nucleus.

## Step 6: Make Adabas Interface Available

You have two options:

- Include the Adabas load library in the steplib of your TSO user procedures.
- Or copy the modules listed in the section referring to installation with TSO of the appropriate Adabas installation manual to a library of your TSO user steplib.

## Installation Verification

Perform the following steps to verify the successful installation of the Natural TSO Interface:

1. Enter TSO, "READY" mode.
2. Invoke the CLIST you created in Step 1 of this Installation Procedure.

Example:

```
EX 'SAGLIB.SMA.SRCE(NATvr)'
```

3. Proceed with the steps described in the section Installation Verification for TP Monitor Interface.